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☐ 1. Document ID: US 20030043414 A1

L3: Entry 1 of 20 File: PGPB Mar 6, 2003

DOCUMENT-IDENTIFIER: US 20030043414 A1
TITLE: Method of generating medium resolution proofs from high resolution image data

Summary of Invention Paragraph (28):
[0026] In general, in one aspect, the invention features a method for determining an optimal sample dimension suitable for descreening and resealing the raster data of a halftone image, which was converted from an original contone image using a periodic screen. The method comprises obtaining parameters of the periodic screen, including a line density, a cell dimension, and a screen angle; and modifying the cell dimension depending upon the line density and the screen angle of the periodic screen thereby calculating the optimal sample dimension suitable for descreening of the halftone image. The method of the invention may also include storing the optimal sample dimension. Further, the method of the invention may include descreening and resealing raster data using the calculated optimal sample dimension.

CLAIMS:

1. A method for determining an optimal sample dimension suitable for descreening and resealing the raster data of a halftone image, said halftone image converted from an original contone image using a periodic screen, the method comprising the steps of: (a) obtaining parameters of said periodic screen, said parameters comprising: a line density, a cell dimension, and a screen angle; and (b) modifying said cell dimension in response to said line density and said screen angle, thereby calculating said optimal sample dimension suitable for descreening said halftone image.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments   KWIC | Draw Desc | Image

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☐ 2. Document ID: US 6054817 A

L3: Entry 2 of 20 File: USPT Apr 25, 2000

DOCUMENT-IDENTIFIER: US 6054817 A
TITLE: Three dimensional display system

Brief Summary Text (23):
Preferably the transformation is determined by means of a matrix, the matrix having elements corresponding to: the horizontal component of the separation of the origins of the two coordinate systems: the vertical component of the separation; the angle of rotation of the one or more electron guns about the one or more electron guns own axis; and the screen angle.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments   KWIC | Draw Desc | Image

☐ 3. Document ID: US 5537223 A

L3: Entry 3 of 20 File: USPT Jul 16, 1996

DOCUMENT-IDENTIFIER: US 5537223 A
TITLE: Rotating non-rotationally symmetrical halftone dots for encoding embedded data in a hyperacuity printer

Brief Summary Text (15):
The new location accessed by the rotation of the address coordinates could differ from the original location in all cases by a predetermined angle from a central point of rotation, while maintaining a constant radius from the central point of rotation. The angle would determine how much the halftone dot is rotated, where the point of rotation could be picked beforehand as the center of the halftone dot. Application of the transformation could rotate the halftone dot without affecting the screen frequency, screen angle or halftone dot density.

Detailed Description Text (124):
In practice, data used to determine the halftone dot rotation angle must accompany the image data. As image data is presented to the halftone generator, so is rotation angle data presented to the address transformation electronics. It is not the desire here to present an encoding algorithm for embedding data, but instead to present how to successfully rotate a halftone dot by any angle without effecting the screen angle or other attributes which effect image viewing quality.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 4. Document ID: US 5530555 A

L3: Entry 4 of 20 File: USPT Jun 25, 1996

DOCUMENT-IDENTIFIER: US 5530555 A
TITLE: Method and apparatus for recording halftone dot image with different repeating units

Detailed Description Text (6):
On the other hand, hue to be enhanced may be varied with the original image components. In this case, it is necessary to change a screen angle (angle formed by a main scanning or subscanning line and the direction for repetition of the halftone dots) corresponding to each color separation for each original image component, in order to suppress appearance of interference fringes (moires) between a plurality of color separations which are related to the hue to be enhanced. FIG. 4 shows exemplary halftone dots, having the same shapes, which are recorded at three different screen angles .theta. with halftone dot area rates of 50% similarly to those shown in FIG. 3, at (a) to (c) respectively. It is assumed that 23 scanning lines form each of two edges of the minimum repeating unit of a halftone dot at a screen angle .theta. of 0.degree. as shown at (a) in FIG. 4, for example. When halftone dots of the same shapes and sizes are recorded at a different screen angle .theta. of 45.degree., on the other hand, 65 scanning lines form each of two edges of the minimum repeating unit of the halftone dots, as shown at (b) in FIG. 4. When halftone dots are recorded at a screen angle .theta. of 15.degree., further, 260 scanning lines form each of two edges of the minimum repeating unit of the halftone dots, as shown at (c) in FIG. 4. Namely, when halftone dots of the same shapes and the same sizes are thus recorded at different screen angles, the minimum repeating units of the halftone dots are generally different from each other. The halftone dot recording apparatus according to the present invention can record halftone dots in

minimum repeating units which are varied with respective original image components, whereby it is possible to record the halftone dots at properly different screen angles in response to the respective original components.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☑ 5. Document ID: US 5463720 A

L3: Entry 5 of 20 File: USPT Oct 31, 1995

DOCUMENT-IDENTIFIER: US 5463720 A
TITLE: Blue noise based technique for use in a halftone tile oriented screener for masking screener induced image artifacts

Brief Summary Text (19):
Furthermore, output halftone images produced through use of a digital screener and printed on a digital output writers, such as laser printers with one or more marking lasers, have a tendency to contain unwanted and visually objectionable Moire patterns (and other similar artifacts). One cause of these patterns, i.e. so-called "screener induced" Moire, results from spatial interactions that arise between periodic two-dimensional sampling that occurs in the screening process itself with a two-dimensional pattern at which output spots are produced by the writer. In particular, digital screeners typically rely on periodically sampling a pre-defined pattern, such as halftone reference cell or a pre-defined threshold matrix, on a grid-like pattern (i.e. the "halftone sampling" grid) to produce a halftone dot pattern. Digital output writers rely on generating output spots also on a pre-defined grid-like pattern (i.e. the "writing" grid), but with each point on the grid being either light or dark and spatially corresponding to a position of a given dot in a two-dimensional writing area. The spacing between adjacent points on the writing grid, i.e. adjacent dots in the image, is determined by the output resolution of the writer. While, for any output writer, the writing grid is fixed in both resolution and orientation (with its axes being parallel to the vertical and horizontal directions of a printed page); the "halftone sampling" grid is intentionally varied both as to its resolution, as dictated by the screen ruling, and its angular orientation, as dictated by the screen angle, desired by a user. A halftone dot is typically formed of several successive horizontally oriented rasters of writing spots with the number of individual writing spots that are darkened, in any such raster, to form the dot being determined by the size of the underlying continuous tone value (and, where used, the associated halftone reference cell). Inasmuch as the halftone sampling and writing grids often have different elemental spacings (resolutions) as well as different angular orientations, sampled data generated by the halftone sampling grid interacts with the writing grid to produce beat patterns that manifest themselves, in the output image, as, e.g., Moire patterns. Moreover, in a digital halftone image, Moire patterns (and similar image artifacts) can result from several different sources: only one of which is screener induced Moire. In this regard, Moire patterns can also result from superimposing primary color (cyan, magenta, yellow and black--C,Y,M,K) halftone separations to yield a halftone color image. Specifically, Moire patterns could be generated by spatial interactions of the halftone dot patterns in the overlaid separations. If such spatial interactions are sufficiently strong, regardless of their actual source, then the resulting Moire patterns can be quite noticeable and visually objectionable. The presence of screener induced Moire not only adds to the source of image Moire, but also screener induced Moire also camouflages the source of image Moire, to a user, thereby greatly complicating and frustrating the removal of all image Moire from a halftone color image. At first blush, one would think that when Moire patterns occur in a screened halftone image, a user merely needs to change the screen ruling and/or screen angle to values that shift the beat frequencies to far less noticeable Moire patterns. Unfortunately, doing so, particularly where two (or more) sources of the Moire patterns simultaneously exist, can be an extremely tedious, time-consuming and labor-intensive process.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments KWIC | Draw Desc | Image

☑ 6. Document ID: US 5463471 A

L3: Entry 6 of 20 File: USPT Oct 31, 1995

DOCUMENT-IDENTIFIER: US 5463471 A

**** See image for Certificate of Correction ****

TITLE: Method and system of color halftone reproduction

Brief Summary Text (7):

Color halftone reproduction has been adapted for use with digital computers, CRTs, and color printers. Prior art digital color halftone reproduction systems have used image scanners to digitize an original image; have included networks for altering the color hues of the image; have incorporated CRTs for enabling an operator to observe the effects of the color alterations; have included methods for simulating various screen angles; and have included methods for calculating the amounts of each color ink required to correctly reproduce the image. However, as personal computer systems and low-cost color printers have become more common, a need has developed for a system of creating high-quality halftone reproductions using these components.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments KWIC | Draw Desc | Image

☐ 7. Document ID: US 5422742 A

L3: Entry 7 of 20 File: USPT Jun 6, 1995

DOCUMENT-IDENTIFIER: US 5422742 A

TITLE: Method and apparatus for generating halftone images by discrete one-to-one dither tile rotation

Abstract Text (1):

The invention relates to a method and apparatus for automatic high-speed generation of digital angled halftone screens, specially suited for obtaining screens approximating the irrational angles which are generally required by high-quality color reproduction. The method enables color separations to be generated which minimize Moire effects, interferences and artifacts by applying discrete one-to-one rotations to digital halftone screens of the required period in order to reach the final screen angle. Dither tiles incorporating assemblies of the basic screen element are rotated by one-to-one discrete rotation and transformed into a new type of dither array, the scanning dither array. The scanning dither array is composed both of dither thresholds and of displacement vectors, providing the means to scan the dither array at image generation time. Several different discrete one-to-one rotation variants are proposed: a small angle rotation technique valid for a subset of rational rotation angles, a rigid band technique and an improved band technique valid for all rational rotation angles and a technique based on discrete shearing transformations. The high-quality of the so rotated dither tile is due to the fact that discrete one-to-one rotation preserves the exact number of elementary cells per screen element and their exact dither threshold values.

Brief Summary Text (20):

The method enables us to define for each dither layer the initial and final screen angles, the final screen period and the rotation angle for generating colour

separations which minimize Moire effects. First, expanded dither tiles of a size enabling discrete one-to-one rotation are generated by assembling digital halftone screen elements of the required period, initial angle and dither levels defining the screen dot growth behavior. The desired final orientation is reached by applying to the tile one or several discrete one-to-one rotations. After each rotation, the current tile may have to be replaced by an equivalent tile paving the plane and enabling the next discrete one-to-one rotation step. The resulting rotated tile may be transformed into a new type of dither array, the scanning dither array, which is composed both of dither threshold values and of displacement vectors, providing the means for efficiently scanning the dither array at image generation time.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 8. Document ID: US 5398118 A

L3: Entry 8 of 20 File: USPT Mar 14, 1995

DOCUMENT-IDENTIFIER: US 5398118 A
TITLE: Automatical generation of a periodic pattern without occurrence of moire

Brief Summary Text (5):
In color printing, in order to prevent moire in overprinting of color decomposed images, halftone image recording is carried out by changing a screen angle (halftone angle) for every color decomposed images. In addition, the number of intensity or gray levels indicated by the halftone screen may be changed in accordance with recording density in the scanning image writing section. Two methods of changing the screen angle and the number of intensity levels have been proposed as follows.

Detailed Description Text (4):
In color printing, a color image on a manuscript is decomposed into three color decomposed images (RGB) where three colors are red (R), green (G), and blue (B). The three color decomposed images (RGB) are converted into another three color decomposed images (YMC) where three colors are yellow (Y), magenta (M), cyan (C). Four colors yellow (Y), magenta (M), cyan (C), and black (B.sub.L) are often used. In theory, only the three inks yellow, magenta, and cyan (YMC) should be needed. Mixing the three inks should produce an ink which absorbs all the light, yielding black (B.sub.L). But, in practice, the inks may not absorb completely or mix well, so a fourth black ink is used to set the shade. On overprinting the four color decomposed images (YMCB.sub.L), moire often occurs. To prevent occurrence of moire, halftone image recording is carried out by changing a screen angle (halftone angle) for every color decomposed images (YMCB.sub.L). In addition, the number of intensity or gray levels indicated by the halftone screen may be changed in accordance with recording density of the scanning image writing section 25. As described above, conventional two methods have been proposed in changing the screen angle and the number of the intensity levels for the halftone screen. However, the conventional two methods have defects as mentioned in the preamble of the instant specification.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 9. Document ID: US 5297217 A

L3: Entry 9 of 20 File: USPT Mar 22, 1994

DOCUMENT-IDENTIFIER: US 5297217 A
TITLE: Tile-oriented technique for collectively performing image rotation scaling and digital halftone screening

Brief Summary Text (24):
Specifically, in accordance with our detailed teachings, our inventive method relies on effectively partitioning a contone image into an array of non-overlapping tiles and an output image into an array of blocks, the latter usually overlapping depending upon an angle, .phi., (rotation angle) through which the contone image is to be rotated. The block size is fixed at illustratively 32-by-32 locations for enlargement scaling and variable, to a certain extent, for reduction scaling. The tiles are, sized based upon anamorphic scale factors, .alpha. and .beta., and the rotation angle such that a tile, when rotated with respect to its corresponding block, will be the maximum size that will fit within that block. Based upon, inter alia, the tile and block sizes as well as the rotation angle, anamorphic scale factors and screen angle, .theta., incremental pixel sampling coordinates are determined such that for movement, on a pixel-by-pixel basis, through successive pixels in a block, halftoned output data can be obtained for each such pixel in that block from contone data contained within a minimally sized box in the contone image that completely contains a corresponding contone tile. Incremental sampling coordinates are also defined for corresponding incremental pixel movements through a halftone screening pattern, based upon, inter alia, screen ruling and a screen angle, .theta., to yield a successive sampled halftoned value for each pixel in a block. Increments are also defined for movement between successive tiles in the contone image as well as between successive tiles in the halftoned screen pattern and between successive blocks in the output image. Once all these increments are chosen, each tile in the contone image is successively processed to fill each successive and corresponding block with halftoned output data. This processing entails incrementing through a current output block on a pixel-by-pixel basis to produce a sequence of output pixel locations, incrementally sampling through the contone image to yield a sampled contone value associated with each output pixel location in order to produce a plurality of sampled contone values, and incrementally sampling through the halftone pattern to yield, in response to each of the sampled contone values, a corresponding halftone output value for each output pixel location in the sequence to yield a plurality of halftone output values. These incrementation and incremental contone and halftone sampling processes occur substantially in lockstep such that after an address is generated for each successive pixel in the current block, a corresponding sampled contone value and a corresponding halftone output value are generated therefor. This processing continues along each row of a current block in a fast scan direction and from row to row in that block along a slow scan direction until the current block is completely filled with output halftone values. Halftoned data is only written into the buffer for those locations in the current block that have corresponding sampled contone values lying within a current tile being processed; a zero value is written into all the other locations therein. After the current contone tile has been completely processed, the contents of the buffer are transferred into an output block in a page buffer. This output block is situated at a location corresponding to the spatial location of the current block in the output image. After the current contone tile has been processed, the next successive contone tile, as defined by the tile increments, is processed to yield output halftoned data for the next block in the output image, and so on for each successive contone tile. To ensure that all the contone tiles are properly aligned, the starting location of each successive contone tile is modified by values of positional offsets that exist between positions of edges of a block and corners of a corresponding rotated contone tile. Contone tiles are processed sequentially along a row, i.e. in a fast scan direction, and from row to row, i.e. in a slow scan direction, through the entire contone image.

10. Document ID: US 5204916 A

L3: Entry 10 of 20   File: USPT   Apr 20, 1993

DOCUMENT-IDENTIFIER: US 5204916 A
TITLE: Tile-oriented technique for collectively performing image rotation, scaling and digital halftone screening

Brief Summary Text (25):
Specifically, in accordance with our detailed teachings, our inventive method relies on effectively partitioning a contone image into an array of non-overlapping tiles and an output image into an array of blocks, the latter usually overlapping depending upon an angle, .phi., (rotation angle) through which the contone image is to be rotated. The block size is fixed at illustratively 32-by-32 locations for enlargement scaling and variable, to a certain extent, for reduction scaling. The tiles are sized based upon anamorphic scale factors, .alpha. and .beta., and the rotation angle such that a tile, when rotated with respect to its corresponding block, will be the maximum size that will fit within that block. Based upon, inter alia, the tile and block sizes as well as the rotation angle, anamorphic scale factors and screen angle, .theta., incremental pixel sampling coordinates are determined such that for movement, on a pixel-by-pixel basis, through successive pixels in a block, halftoned output data can be obtained for each such pixel in that block from contone data contained within a minimally sized box in the contone image that completely contains a corresponding contone tile. Incremental sampling coordinates are also defined for corresponding incremental pixel movements through a halftone screening pattern, based upon, inter alia, screen ruling and a screen angle, .theta., to yield a successive sampled halftoned value for each pixel in a block. Increments are also defined for movement between successive tiles in the contone image as well as between successive tiles in the halftoned screen pattern and between successive blocks in the output image. Once all these increments are chosen, each tile in the contone image is successively processed to fill each successive and corresponding block with halftoned output data. This processing entails incrementing through a current output block on a pixel-by-pixel basis to produce a sequence of output pixel locations, incrementally sampling through the contone image to yield a sampled contone value associated with each output pixel location in order to produce a plurality of sampled contone values, and incrementally sampling through the halftone pattern to yield, in response to each of the sampled contone values, a corresponding halftone output value for each output pixel location in the sequence to yield a plurality of halftone output values. This incrementation and incremental contone and halftone sampling processes occur substantially in lockstep such that after an address is generated for each successive pixel in the current block, a corresponding sampled contone value and a corresponding halftone output value are generated therefor. This processing continues along each row of a current block in a fast scan direction and from row to row in that block along a slow scan direction until the current block is completely filled with output halftone values. Halftoned data is only written into the buffer for those locations in the current block that have corresponding sampled contone values lying within a current tile being processed; a zero value is written into all the other locations therein. After the current contone tile has been completely processed, the contents of the buffer are transferred into an output block in a page buffer. This output block is situated at a location corresponding to the spatial location of the current block in the output image. After the current contone tile has been processed, the next successive contone tile, as defined by the tile increments, is processed to yield output halftoned data for the next block in the output image, and so on for each successive contone tile. To ensure that all the contone tiles are properly aligned, the starting location of each successive contone tile is modified by values of positional offsets that exist between positions of edges of a block and corners of a corresponding rotated contone tile. Contone tiles are processed sequentially along a row, i.e. in a fast scan direction, and from row to row, i.e. in a slow scan direction, through the entire contone image.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMC | Draw Desc | Image

☐ 11. Document ID: US 5166809 A

L3: Entry 11 of 20 File: USPT Nov 24, 1992

DOCUMENT-IDENTIFIER: US 5166809 A
TITLE: Apparatus and methods for digital halftoning

Detailed Description Text (32):
As was previously mentioned, the application of dither technique to the digital production of halftone screens conceptually corresponds to superimposing a dither matrix on a grid-like representation of the incremental regions for which continuous tone row and column information is to be processed. Thus, it can be seen that grid 54 of FIG. 6A corresponds to a portion of a dither matrix (i.e. first four rows and first seven columns) that is indexed to the upper left hand corner of the depicted continuous tone region of an image being processed (represented in FIG. 6A by grid 52). Moreover, it can be recognized in FIG. 6A that the Cartesian coordinates of the center points of dither matrix elements in grid 54 can be determined by rotating the center points of the continuous tone elements (center points of the cells on grid 52) clockwise by 15.degree.. Thus, rotation of the center points of the continuous tone incremental regions in effect corresponds to mapping the center points from the Cartesian coordinate system that is associated with the continuous tone elements (two dimensional "continuous tone space") into the rotated Cartesian coordinate system associated with a dither matrix that is oriented at the proper screen angle for a cyan halftone color separation (two dimensional "dither space").

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 12. Document ID: US 4987498 A

L3: Entry 12 of 20 File: USPT Jan 22, 1991

DOCUMENT-IDENTIFIER: US 4987498 A
TITLE: Method of forming halftone screen

CLAIMS:

1. A method of forming a halftone screen in converting a continuous-tone image into a halftone dot image based on halftone screen signals by defining a screen angle as a rotational tangent thereof to establish a basic periodic portion of the halftone screen signals and periodically generating the basic period portion to cover an entire scanned region of the continuous-tone image, said method comprising the steps of:

preparing minimum unit dot data items necessary to define said basic period portion as determined by a screen angle and a dot resolution level; and

generating said dot data items in a sequence of address signals X, Y which is established based on said screen angle and said dot resolution level to constitute said basic periodic portion;

wherein said dot data items represented by address signals X, Y are converted into dot data items represented by address signals x, y which are defined by:

x=MOD(X+F(Y),N.sub.x)

y=MOD(Y,N.sub.y)

where N.sub.x, N.sub.y are numbers of dot data items of said basic periodic portion in directions X, Y, respectively, F(Y) is an address offset number with respect to the address signal Y, and MOD is a modulo operator.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

13. Document ID: US 4924301 A

L3: Entry 13 of 20 File: USPT May 8, 1990

DOCUMENT-IDENTIFIER: US 4924301 A
TITLE: Apparatus and methods for digital halftoning

Detailed Description Text (32):
As was previously mentioned, the application of dither technique to the digital production of halftone screens conceptually corresponds to superimposing a dither matrix on a grid-like representation of the incremental regions for which continuous tone row and column information is to be processed. Thus, it can be seen that grid 54 of FIG. 6 corresponds to a portion of a dither matrix (i.e. first four rows and first seven columns) that is indexed to the upper left hand corner of the depicted continuous tone region of an image being processed (represented in FIG. 6 by grid 52). Moreover, it can be recognized in FIG. 6 that the Cartesian coordinates of the center points of dither matrix elements in grid 54 can be determined by rotating the center points of the continuous tone elements (center points of the cells on grid 52) clockwise by 15.degree.. Thus, rotation of the center points of the continuous tone incremental regions in effect corresponds to mapping the center points from the Cartesian coordinate system that is associated with the continuous tone elements (two dimensional "continuous tone space") into the rotated Cartesian coordinate system associated with a dither matrix that is oriented at the proper screen angle for a cyan halftone color separation (two dimensional "dither space").

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

14. Document ID: US 4612584 A

L3: Entry 14 of 20 File: USPT Sep 16, 1986

DOCUMENT-IDENTIFIER: US 4612584 A
**** See image for Certificate of Correction ****
TITLE: Screen gravure engraving system for electromechanical engravers

Detailed Description Text (11):
Referring to FIG. 7, a portion of a halftone film 70 is illustrated with a CCD array 26A arranged for scanning the same in the direction of the arrow. Advantageously, halftone films having different rulings or screen angles, such as halftone film 70, can be readily accommodated by the present invention by changing the number of photodiodes which cover the large area 72 and the small area 74 having its center coincident therewith. That is, the active length A-D of the photodiode array 26A may include only 180 photodiodes, e.g., photodiodes 39 through 218, and the small area 74 may have a width of 90 photodiodes, e.g., photodiodes 84 through 174 covering width B-C of the array 26A. This is readily accomplished by programming the computer 20 with the screen ruling and screen angle of the film 70. The photodiodes to be counted are then determined by the computer. Advantageously, the photodiodes to be counted can be changed on-the-fly to accommadate halftone and screened films of different rulings and screen angles by supplying such information to the computer. Further, continuous tone films may also be scanned with the offset to gravure

conversion system of the present invention as will be described with reference to FIG. 8.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 15. Document ID: US 4547814 A

L3: Entry 15 of 20 File: USPT Oct 15, 1985

DOCUMENT-IDENTIFIER: US 4547814 A
TITLE: Method of recording a halftone picture electronically

Brief Summary Text (18):
It is an object of the present invention to provide a method for recording a halftone picture electronically, for use in a halftone picture reproducing machine for plate making, free from the aforementioned defects, which is capable of approximating actual screen pitches for different screen angles regardless of their picture element numbers of a quantized vignette halftone dot in order to prevent a halftone picture from causing moire, varying screen pitches for different screen angles without changing the scanning width, and determining the different picture element numbers for different screen angles per one period, and which can save the capacity of the memory.

Detailed Description Text (91):
Since the screen pitch P can be varied freely without changing the scanning width W which is fixed, the numbers of the picture elements of the quantized vignette halftone dots for the screen angles of 0.degree., 45.degree., 15.degree. and 75.degree., which are to be stored in the solid memory, can be also different other than the approximate numbers similar to the same numbers, and therefore the selectivity of the picture elements included in the vignette halftone dot to be quantized can be increased largely.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 16. Document ID: US 4543613 A

L3: Entry 16 of 20 File: USPT Sep 24, 1985

DOCUMENT-IDENTIFIER: US 4543613 A
TITLE: Method for producing halftone dots in a halftone plate recording apparatus

Brief Summary Text (31):
In the above described method a halftone picture of any described screen angle can be output using the same screen pattern only by changing the screen angle .theta., and further, by varying value of p, a halftone dot of any given screen line number can be output. That is, as p is put smaller, times of adding operation necessary for X and Y addresses to attain to the fundamental period of the screen pattern are increased, so that even if the main scanning clock and the scanning pitch are fixed, a large halftone dot can be output.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 17. Document ID: US 4503457 A

L3: Entry 17 of 20 File: USPT Mar 5, 1985

DOCUMENT-IDENTIFIER: US 4503457 A
TITLE: Tint laying device for use in a picture reproducing machine

Detailed Description Text (21):
Then, the M plate for the original picture 1' is prepared in the same manner as described above, except that the common terminal 18e of the turn switch 18 is connected to the select terminal 18b so that the brightness of the parts including the magenta components may be controlled depending on the halftone dot area rates determined by the potensiometers VR.sub.2 of the halftone dot area rate setting circuits 17, and that the screen angle of the halftone contact screen 9 is changed at a certain angle from the above case so that the moire phenomenon may not occur.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments   KWIC | Draw Desc | Image

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☐ 18. Document ID: US 4196451 A

L3: Entry 18 of 20 File: USPT Apr 1, 1980

DOCUMENT-IDENTIFIER: US 4196451 A
TITLE: Electronic halftone generator

Abstract Text (1):
Method and apparatus for scanning a document original, either black and white or color, and reproducing a corresponding halftone reproduction thereof either locally or at a remote location. A halftone signal is generated by pulse width modulating or comparing the scanned, or video, signal with a periodic signal having two frequencies and phases to create a dot pattern output which is a function of the frequency and phase of the two combined modulating signals. The halftone reproduction generated has variable dot configurations that are controllable to enable both rotation of the dot pattern (screen angle) and geometric modifications of the dot pattern. If the document original is in color, light of three different colors is caused to scan the document, each resultant video signal being processed in a manner as set forth hereinabove. In a preferred embodiment, different screen angles are utilized for each color that comprises the reproduction.

Brief Summary Text (11):
The present invention provides method and apparatus for scanning a document original, either black and white or color, and reproducing a corresponding halftone reproduction thereof either locally or at a remote location. A halftone signal is generated by pulse width modulating, or comparing the scanned or video signal with a periodic signal having two frequencies and phases to create a two-dimensional, continuously varying dot pattern output which is a function of the frequency and phase of the two combined modulating signals. The halftone reproduction generated has variable dot configurations that are controllable to enable both rotation of the dot pattern (screen angle) and geometric modifications of the dot pattern. If the document original is in color, light of three different colors is caused to scan the document, each resultant video signal being processed in a manner as set forth hereinabove. In a preferred embodiment, the different screen angles are utilized and each color comprises the reproduction.

Brief Summary Text (18):
It is a further object of the present invention to provide method and apparatus for scanning a document original, either black and white or color, and reproducing a corresponding halftone reproduction thereof either locally or at a remote location.

A halftone signal is generated by pulse width modulating, or comparing, the scanned or video signal with a periodic signal having two frequencies and phases to create a dot pattern output which is a function of the frequency and phase of the two combined modulating signals. The halftone reproduction generated has variable dot configurations that are controllable to enable both rotation of the dot pattern (screen angle) and geometric modifications of the dot pattern. If the document original is in color, light of three different colors is caused to scan the document, each resultant video signal being processed in a manner as set forth hereinabove. In a preferred embodiment, the different scan angles are utilized for each color that comprises the reproduction.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☑ 19. Document ID: US 4149183 A

L3: Entry 19 of 20 File: USPT Apr 10, 1979

DOCUMENT-IDENTIFIER: US 4149183 A
TITLE: Electronic halftone generator

Abstract Text (1):
Method and apparatus for scanning a document original, either black and white or color, and reproducing a corresponding halftone reproduction thereof either locally or at a remote location. A halftone signal is generated by pulse width modulating or comparing the scanned, or video, signal with a periodic signal having two frequencies and phases to create a dot pattern output which is a function of the frequency and phase of the two combined modulating signals. The halftone reproduction generated has variable dot configurations that are controllable to enable both rotation of the dot pattern (screen angle) and geometric modifications of the dot pattern. If the document original is in color, light of three different colors is caused to scan the document, each resultant video signal being processed in a manner as set forth hereinabove. In a preferred embodiment, different screen angles are utilized for each color that comprises the reproduction.

Brief Summary Text (11):
The present invention provides method and apparatus for scanning a document original, either black and white or color, and reproducing a corresponding halftone reproduction thereof either locally or at a remote location. A halftone signal is generated by pulse width modulating, or comparing the scanned or video signal with a periodic signal having two frequencies and phases to create a two-dimensional, continuously varying dot pattern output which is a function of the frequency and phase of the two combined modulating signals. The halftone reproduction generated has variable dot configurations that are controllable to enable both rotation of the dot pattern (screen angle) and geometric modifications of the dot pattern. If the document original is in color, light of three different colors is caused to scan the document, each resultant video signal being processed in a manner as set forth hereinabove. In a preferred embodiment, the different screen angles are utilized and each color comprises the reproduction.

Brief Summary Text (18):
It is a further object of the present invention to provide method and apparatus for scanning a document original, either black and white or color, and reproducing a corresponding halftone reproduction thereof either locally or at a remote location. A halftone signal is generated by pulse width modulating, or comparing, the scanned or video signal with a periodic signal having two frequencies and phases to create a dot pattern output which is a function of the frequency and phase of the two combined modulating signals. The halftone reproduction generated has variable dot configurations that are controllable to enable both rotation of the dot pattern (screen angle) and geometric modifications of the dot pattern. If the document original is in color, light of three different colors is caused to scan the

document, each resultant video signal being processed in a manner as set forth hereinabove. In a preferred embodiment, the different screen angles are utilized for each color that comprises the reproduction.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments   KWIC | Draw Desc | Image

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☐ 20. Document ID: JP 58004158 A

L3: Entry 20 of 20   File: JPAB   Jan 11, 1983

DOCUMENT-IDENTIFIER: JP 58004158 A
TITLE: IMAGE RECORDING SYSTEM

Abstract Text (1):
PURPOSE: To simply set up a screen angle only by main scanning by changing the starting position of reading of each threshold in a threshold matrix from a memory to obtain a prescribed screen angle.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments   KWIC | Draw Desc | Image

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Term	Documents
SCREEN.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	671288
SCREENS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	106740
ANGLE.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1515854
ANGLES.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	503521
HALFTON$3	0
HALFTON.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	12
HALFTONAL.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	2
HALFTONE.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	14420
HALFTONED.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	819
HALFTONEED.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1
HALFTONER.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	93
((HALFTON$3 OR DITHER$3 OR MATRI$3) WITH ((SCREEN NEAR1 ANGLE) WITH (MODIF$5 OR CHANG$5 OR ALTER$5 OR ROTAT$5) SAME (DETECT$5 OR SCAN$5 OR DETERMIN$5))).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	20

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